

19. Summarize the various types of electrophoresis and their respective applications.
20. Discuss the principles, instrumentation and applications of Scintillation counter.

APRIL/MAY 2024

**CAMB32/FAMB32 — BIO
INSTRUMENTATION (ALLIED)**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.



1. Explain the concept of Relative Centrifugal Force (RCF) and its significance.
2. List out the types of centrifuges.
3. Recall Beer Lambert's law and its significance in colorimetric analysis.
4. Summarize four applications of atomic absorption spectrophotometry.
5. Outline the stationary and mobile phase in paper chromatography.
6. Analyze the role of the mobile phase in HPLC.
7. Define the principle of gel electrophoresis.
8. Illustrate the working of immunoelectrophoresis with a diagram.

9. List two applications of GM counters in radiation detection.
10. Summarize two applications of DNA biosensors in biotechnology.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain the working principles of clinical centrifuges and their applications.

Or

- (b) Elaborate on high speed centrifuge and its limitations.

12. (a) Discuss the advantages and limitations of IR spectrometry.

Or

- (b) Evaluate the working of colorimetry and its applications.

13. (a) Discuss the applications and limitations of Ion exchange chromatography.

Or

- (b) Compare paper and thin layer chromatography.

14. (a) Summarize the applications of gel electrophoresis.

Or

- (b) Outline the working of paper electrophoresis and its limitations.

15. (a) Categorize the types of biosensors and their applications.

Or

Explain autoradiography and their applications.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the different types of centrifuges, emphasizing their working, applications and limitations.

17. Elaborate on the instrumentation and applications of NMR spectrophotometry.

18. Investigate the theory, instrumentation and applications of GC.